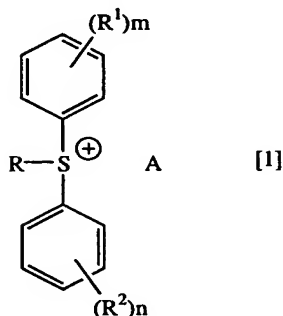
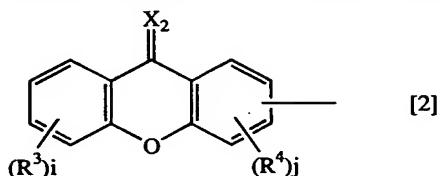


WHAT IS CLAIMED IS:

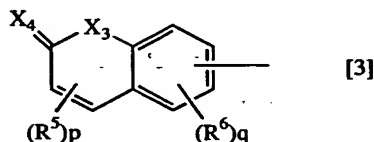
1. A heterocycle-containing onium salt shown by the general formula [1] or [35]:



- 5 [wherein R is a group shown by the general formula [2]:

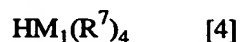


- (wherein R³ and R⁴ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₂ is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:

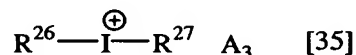


- (wherein R⁵ and R⁶ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₃ and X₄ are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); R¹ and R² are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; m and n are each independently an integer of 0 to 5; and A is a halogen atom or an anion derived from an inorganic

strong acid, an organic acid or a compound shown by the general formula [4]:



(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group)],

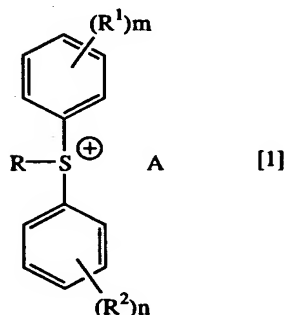


[wherein R^{26} and R^{27} are each independently an aryl group which may have a halogen atom or a lower alkyl group as a substituent, a group shown by the above-mentioned general formula [2], or a group shown by the above-mentioned general formula [3]; A_3 is a halogen atom or an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula [4]; and provided that at least one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], and when only one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], A_3 is an anion derived from an inorganic strong acid shown by the general formula [36];

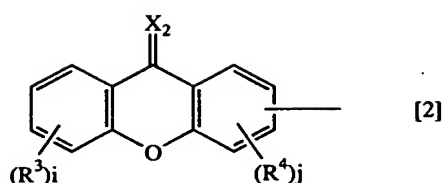


(wherein M_3 is a phosphorus atom, an arsenic atom or an antimony atom), an organic acid or a compound shown by the general formula [4]].

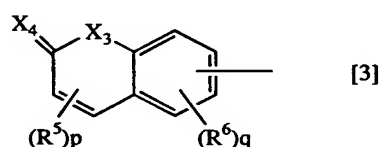
2. An onium salt according to claim 1, wherein the heterocycle-containing onium salt is one shown by the general formula [1]:



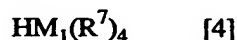
[wherein R is a group shown by the general formula [2]:



(wherein R^3 and R^4 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_2 is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:

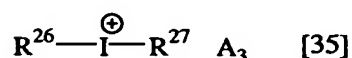


(wherein R^5 and R^6 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_3 and X_4 are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); R^1 and R^2 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; m and n are each independently an integer of 0 to 5; and A is a halogen atom or an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula [4]:

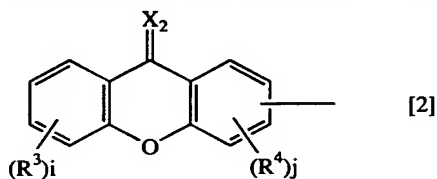


(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group)).

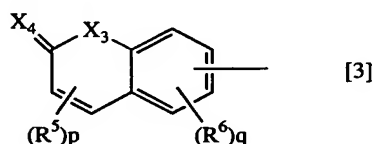
3. An onium salt according to claim 1, wherein the heterocycle-containing onium salt is one shown by the general formula [35]:



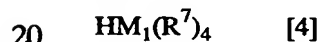
[wherein R^{26} and R^{27} are each independently an aryl group which may have a halogen atom or a lower alkyl group as a substituent, a group shown by the general formula [2];



5 (wherein R^3 and R^4 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_2 is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the
10 general formula [3]:



(wherein R^5 and R^6 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group
15 as a substituent; X_3 and X_4 are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); A_1 is a halogen atom, or an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula
[4]:



(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group); and provided that
25 at least one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], and when only one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], A_1 is an anion derived from an inorganic strong acid shown by the general formula [36]:



30 (wherein M_3 is a phosphorous atom, an arsenic atom or an antimony

atom), an organic acid, or a compound shown by the general formula [4])].

4. A salt according to claim 2, wherein the anion derived from an inorganic strong acid, shown by A is one derived from nitric acid, sulfuric acid, halosulfuric acid, perhalogenic acid or a compound shown by the general formula [5]:



(wherein M_2 is a metalloid atom or a metal atom; and k is an integer of 4 or 6).

5. A salt according to claim 4, wherein the metalloid atom shown by M_2 is a boron atom, a silicon atom, a phosphorus atom, an arsenic atom or an antimony atom; and the metal atom shown by M_2 is an aluminum atom, a titanium atom, an iron atom, a nickel atom, a zirconium atom or a gallium atom.

6. A salt according to claim 2, wherein the anion derived from the organic acid shown by A is one derived from a sulfonic acid shown by the general formula [6]:



(wherein R^8 is an alkyl group, an aryl group or an aralkyl group, which may have a halogen atom), or a carboxylic acid shown by the general formula [7]:



(wherein R^9 is an alkyl group, an aryl group or an aralkyl group, which may have a halogen atom).

7. A salt according to claim 2, wherein R is a group shown by the general formula [2].

8. A salt according to claim 7, wherein X_2 in the general formula [2] is an oxygen atom.

9. A salt according to claim 7, wherein the group shown by the general formula [2] is a xanthonyl group.

10. A salt according to claim 2, wherein R is a group shown by the general formula [3].

5 11. A salt according to claim 10, wherein each X_3 and X_4 in the general formula [3] is an oxygen atom.

12. A salt according to claim 10, wherein the group shown by the general formula [3] is a coumarinyl group.

10

13. A salt according to claim 2, wherein the sulfonium salt shown by the general formula [1] is diphenyl(xanthene-9-one-2-yl)sulfonium hexafluorophosphate or (coumarin-7-yl)diphenylsulfonium hexafluorophosphate.

15

14. A salt according to claim 3, wherein the anion derived from the inorganic strong acid shown by A_3 is one derived from nitric acid, sulfuric acid, halosulfuric acid, perhalogenic acid or an inorganic strong acid shown by the general formula [5]:

20

HM_2F_k [5]

(wherein M_2 is a metalloid atom or a metal atom; and k is an integer of 4 or 6).

15. A salt according to claim 14, wherein the metalloid atom shown by M_2 is a boron atom, a silicon atom, a phosphorus atom, an arsenic atom or an antimony atom; and the metal atom shown by M_2 is an aluminum atom, a titanium atom, an iron atom, a nickel atom, a zirconium atom or a gallium atom.

30 16. A salt according to claim 3, wherein the anion derived from the organic acid shown by A_3 is one derived from a sulfonic acid shown by the general formula [6]:

R^8-SO_3H [6]

35 (wherein R^8 is an alkyl group, an aryl group or an aralkyl group, which may have a halogen atom), or a carboxylic acid shown by the general formula [7]:

R^9-COOH [7]

(wherein R^9 is an alkyl group, an aryl group or an aralkyl group, which may have a halogen atom).

5 17. A salt according to claim 3, wherein each R^{26} and R^{27} is a group shown by the general formula [2].

18. A salt according to claim 17, wherein X_2 in the general formula [2] is an oxygen atom.

10

19. A salt according to claim 17, wherein the group shown by the general formula [2] is a xanthonyl group.

20. A salt according to claim 3, wherein each R^{26} and R^{27} is a group shown by the general formula [3].

15

21. A salt according to claim 20, wherein each X_3 and X_4 in the general formula [3] is an oxygen atom.

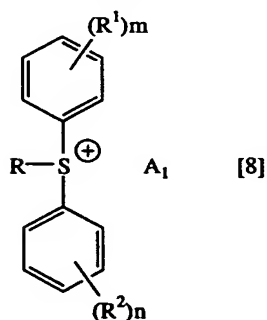
22. A salt according to claim 20, wherein the group shown by the general formula [3] is a coumarinyl group.

20

23. A salt according to claim 3, wherein the iodonium salt shown by the general formula [35] is bis(xanthene-9-one-2-yl)iodonium hexafluorophosphate or bis(coumarin-7-yl)iodonium hexafluorophosphate.

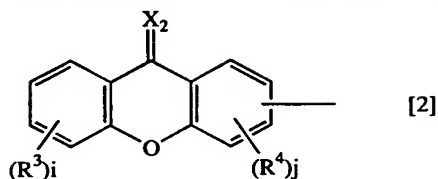
25

24. A cationic photopolymerization initiator comprising a heterocycle-containing onium salt shown by the general formula [8]:

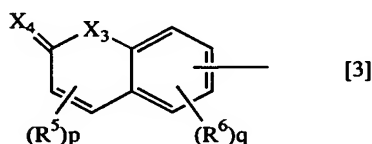


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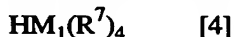
[wherein R is a group shown by the general formula [2]:



(wherein R³ and R⁴ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₂ is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:



(wherein R⁵ and R⁶ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₃ and X₄ are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); R¹ and R² are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; m and n are each independently an integer of 0 to 5; and A₁ is an anion derived from an inorganic strong acid, a sulfonic acid or a compound shown by the general formula [4]:



(wherein M₁ is a boron atom or a gallium atom; R⁷ is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group)].

25. A polymerization initiator according to claim 24, wherein A₁ is an anion derived from the compound shown by the general formula [4] or an inorganic strong acid shown by the general formula [5]:

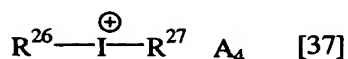


(wherein M₂ is a metalloid atom or a metal atom; and k is an integer

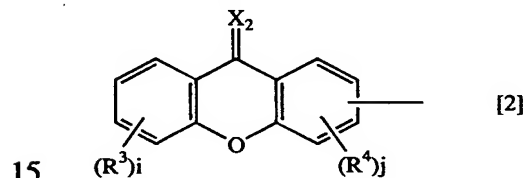
of 4 or 6).

26. A polymerization initiator according to claim 24, wherein the sulfonium salt shown by the general formula [8] is
 5 diphenyl(xanthene-9-one-2-yl)sulfonium hexafluorophosphate or (coumarin-7-yl)diphenylsulfonium hexafluorophosphate.

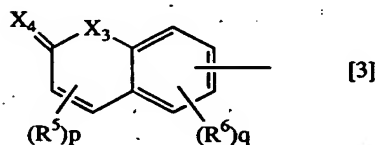
27. A cationic photopolymerization initiator comprising a heterocycle-containing iodonium salt shown by the general formula
 10 [37]:



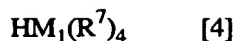
[wherein R^{26} and R^{27} are each independently an aryl group which may have a halogen atom or a lower alkyl group as a substituent, a group shown by the general formula [2]:



(wherein R^3 and R^4 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_2 is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the
 20 general formula [3]:



(wherein R^5 and R^6 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_3 and X_4 are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); and A_4 is an anion derived from an inorganic strong acid, a sulfonic acid or a compound shown by the general formula [4]:
 25



(wherein M_1 is a boron atom or a gallium atom; R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group); and provided that at least one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], and when only one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], an inorganic strong acid is one shown by the general formula [36]:



(wherein M_3 is a phosphorus atom, an arsenic atom or an antimony atom)].

28. A polymerization initiator according to claim 27, wherein A_4 is an anion derived from the compound shown by the general formula [4] or an inorganic strong acid shown by the general formula [5]:



(wherein M_2 is a metalloid atom or a metal atom; and k is an integer of 4 or 6).

29. A polymerization initiator according to claim 27, wherein the iodonium salt shown by the general formula [37] is bis(xanthene-9-one-2-yl)iodonium hexafluorophosphate or bis(coumarin-7-yl)iodonium hexafluorophosphate.

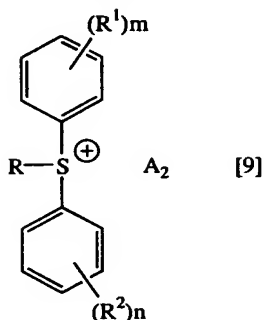
30. A method for polymerization of an epoxy monomer, which comprises using the polymerization initiator in claim 24.

31. A method for polymerization of a vinyl ether monomer, which comprises using the polymerization initiator in claim 24.

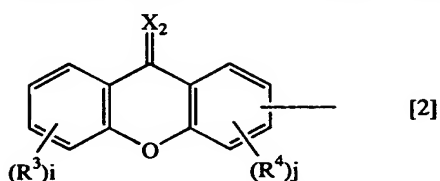
32. A method for polymerization of an epoxy monomer, which comprises using the polymerization initiator in claim 27.

33. A method for polymerization of a vinyl ether monomer, which comprises using the polymerization initiator in claim 27.

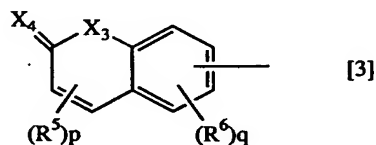
34. An acid generator for a resist, comprising a sulfonium salt shown by the general formula [9]:



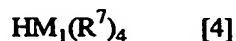
[wherein R is a group shown by the general formula [2]:



(wherein R³ and R⁴ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₂ is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:



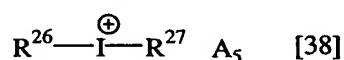
(wherein R⁵ and R⁶ are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X₃ and X₄ are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); R¹ and R² are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; m and n are each independently an integer of 0 to 5; and A₂ is an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula [4]:



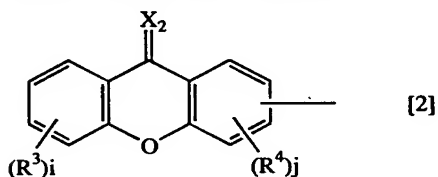
(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group)].

- 5 35. An acid generator according to claim 34, wherein the sulfonium salt shown by the general formula [9] is diphenyl(xanthene-9-one-2-yl)sulfonium hexafluorophosphate or (coumarin-7-yl)diphenylsulfonium hexafluorophosphate. •

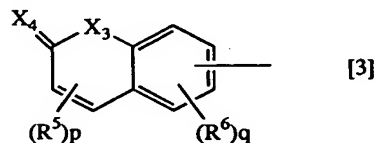
- 10 36. An acid generator for a resist, comprising an iodonium salt shown by the general formula [38]:



[wherein R^{26} and R^{27} are each independently an aryl group which may have a halogen atom or a lower alkyl group as a substituent, a group shown by the general formula [2]:

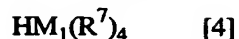


- (wherein R^3 and R^4 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_2 is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:

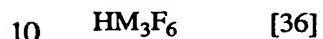


- (wherein R^5 and R^6 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_3 and X_4 are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); and A_5 is an anion derived from an inorganic strong acid,

an organic acid or a compound shown by the general formula [4]:



(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group); and provided that at least one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], and when only one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], an inorganic strong acid is one shown by the general formula [36]:



(wherein M_3 is a phosphorus atom, an arsenic atom or an antimony atom)].

15 37. An acid generator according to claim 36, wherein the iodonium salt shown by the general formula [38] is bis(xanthene-9-one-2-yl)iodonium hexafluorophosphate or bis(coumarin-7-yl)iodonium hexafluorophosphate.